

REMARKS

Claims 41-75 are pending in the present application. Claims 1-29, 31-33, 39 and 40 have been canceled. Claims 41-75 have been presented herewith.

Claim Rejections-35 U.S.C. 112

Claims 1-23, 35 and 39 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The above noted claims have been canceled. The Examiner is therefore respectfully requested to withdraw this rejection.

Claim Rejections-35 U.S.C. 103

Claims 1-29, 31-33 and 35-40 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Kuffner et al. reference (U.S. Patent No. 5,486,836). This rejection, insofar as it may pertain to the presently pending claims, is traversed for the following reasons.

In the antenna system as illustrated in Fig. 3 of the Kuffner et al. reference, switch 306 may be set to select **either one of** patch antenna 302 or 304 to provide polarization diversity in the receive path. Also, switch 306 may be set to select patch antenna 302 for transmission. In the antenna system illustrated in Fig. 4 of the Kuffner et al. reference, switch 306 may similarly be set to select **either one of** patch antenna 302 or 402 to provide spatial diversity in the receive path. In Figs. 5 and 6 of the Kuffner et al. reference, switches 506 and 508, and switches 604 and 606, respectively provide diversity in both the transmit and receive paths.

In general, switching device 4 in Fig. 1 of the present application changes antenna configuration states of antenna device 2 by selectively coupling **a plurality of different antennas to each other.** In contrast, the Kuffner et al. reference provides diversity by permitting selection of **either one of** a first patch antenna or a second patch antenna. In the Kuffner et al. reference, only one antenna is operable at a time for transmission or reception.

In particular, the antenna device of claim 41 includes in combination an antenna structure "comprising a plurality of antenna elements capable of being connected to and disconnected from each other". The antenna device of claim 63 includes in combination an antenna structure comprising "at least three antenna elements capable of being connected to and disconnected from each other". The antenna device of claim 69 is featured as comprising an antenna structure "including a plurality of antenna elements capable of being connected to and disconnected from each other". In a somewhat similar manner, the antenna device of claim 70 is featured as comprising an antenna structure ¶ including at least three antenna elements capable of being connected to and disconnected from each other".

As emphasized above, in the Kuffner et al. reference, only one antenna is operable at a time for transmission or reception. The Kuffner et al. reference does not disclose or even remotely suggest selectively coupling the plurality of different antennas to each other, and thus does not disclose or suggest antenna elements capable of being connected to and disconnected from each other as featured in the above noted claims. Applicants therefore respectfully submit that claims 41-45, 63, 69 and 70 would

not have been obvious in view of the Kuffner et al. reference as relied upon by the Examiner, for at least the above reasons.

The antenna device of claim 64 includes in combination an antenna structure “comprising a plurality of antenna elements capable of being connected to and disconnected from each other, said antenna structure being switchable between a plurality of predefined antenna configuration states, in which said antenna structure has different electrical lengths and resonance frequencies”. Claim 71 includes somewhat similar features. Applicants respectfully submit that the Kuffner et al. reference does not disclose these features, wherein a plurality of antenna elements are capable of being connected to and disconnected from each other so that an antenna structure has different electrical lengths and resonance frequencies. Applicants therefore respectfully submit that claims 47, 48, 64 and 71 would not have been obvious in view of the Kuffner et al. reference as relied upon by the Examiner, for at least these reasons.

The antenna device of claim 65 includes in combination an antenna structure “comprising an antenna element and a plurality of feed connectors and/or ground connectors capable of being connected to and disconnected from said antenna element, said antenna structure being switchable between a plurality of predefined antenna configuration states, in which said different feed connectors and/or ground connectors are connected to said antenna element”. Claim 72 includes somewhat similar features. The Kuffner et al. reference does not disclose these features. Applicants therefore respectfully submit that claims 49-51, 65 and 72 would not have

been obvious in view of the prior art as relied upon by the Examiner, for at least these reasons.

The antenna device of claim 66 includes in combination an antenna structure “comprising a plurality of antenna elements capable of being connected to and disconnected from each other, said antenna structure being switchable between at least three predefined antenna configuration states”, and a control device ¶ provided for receiving a detected physical property external to said portable radio communication terminal device, for determining one of said at least three different operation environments external to said portable radio communication terminal device depending on said detected physical property, and for controlling said switching device...” Claims 67, 68 and 73-75 respectively include somewhat similar features, including at least three antenna configuration states, the sensing of the operation environment, and switching effectuated to a determined state, whereby an adaptive search is not necessary.

In particular, a parameter is measured and an operation environment is determined. The switching is effectuated to reach the antenna configuration state that is associated with that operation environment. Thus, switching can be made directly to the antenna configuration state that is associated with the operation environment determined from measurements. The switching state is selected directly, and no adaptive search for best radio reception is made as in the RSSI based polarization diversity disclosed in the Kuffner et al. reference.

The parameter measured may be a detectable physical property external to the portable radio communication terminal device (claims 66 and 73); a sensed resistance, capacitance, inductance, light, temperature, and/or pressure value external to the portable radio communication terminal device (claims 67 and 64); or a measure of inclination, orientation and/or motion of the portable radio communication terminal device (claims 68 and 75).

Applicants emphasize that since at least three antenna configuration states are featured as being associated with different respective operation environments that have to be detected, RSSI (as disclosed in the Kuffner et al. reference) or VSWR cannot be used. By RSSI and VSWR measurements, only a value which is acceptable, or a value which is not acceptable, may be obtained. In this case, it can be determined that the current antenna configuration state is not good. However, there is no indication as to how to improve reception/transmission. That is, an adaptive or trial-and-error method would be necessary to search for the best antenna configuration.

In contrast, in view of the sensing as featured in claims 66-68 and 73-75 as noted above, it can be established in which environment (among at least three different ones) the antenna device is at the moment, and then the antenna configuration state which is associated with that current operation environment can be selected, without the necessity of a search.

Applicants respectfully submit that the Kuffner et al. reference does not disclose these features. That is, the Kuffner et al. reference merely discloses RSSI based polarization diversity. Applicants therefore respectfully submit that claims 57-61, 66-68

and 73-75 would not have been obvious in view of the Kuffner et al. reference for at least these reasons.

Conclusion

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejection, and to pass the claims of the present application to issue, for at least the above reasons.

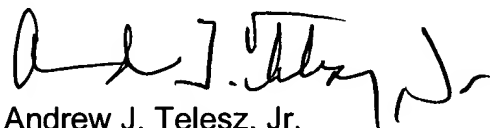
In the event that there are any outstanding matters remaining in the present application, please contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (703) 715-0870 in the Washington, D.C. area, to discuss these matters.

Pursuant to the provisions of 37 C.F.R. 1.17 and 1.136(a), the Applicants hereby petition for an extension of two (2) months to March 7, 2004, for the period in which to file a response to the outstanding Office Action. The required fee of \$420.00 should be charged to the Deposit Account No. 50-0238.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment for any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0238.

Respectfully submitted,

VOLENTINE FRANCOS, P.L.L.C.



Andrew J. Telesz, Jr.
Registration No. 33,581

Telephone No.: (703) 715-0870
Facsimile No.: (703) 715-0877